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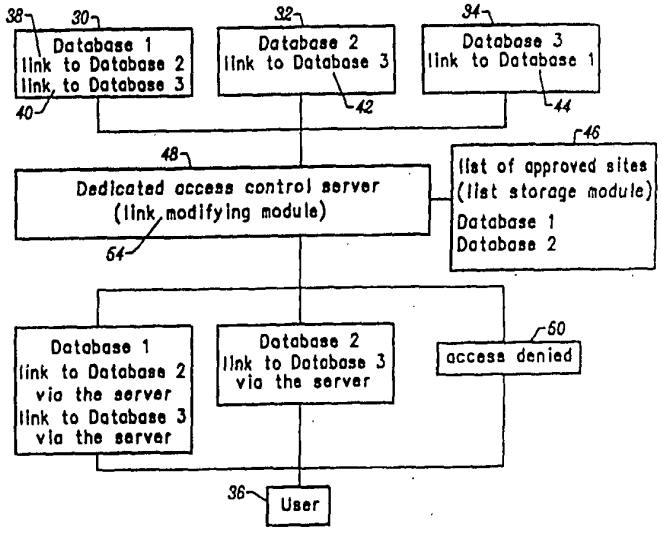
(54) Title: DATABASE ACCESS SYSTEM

(57) Abstract

A system for organizing access to a database that is distributed over an electronic network includes a system site on a dedicated server. A list of addresses to approved database sites on an electronic network stored on the system site is accessed by a user with a browser application. Reference cards permit the user to search and review the list of approved sites. In a first preferred embodiment, a request for access to a database site is made to the dedicated server. Access is denied for a non-approved site. An approved database is retrieved by the dedicated server. Each database link to an approved site is modified from direct to indirect to require all future access to be directed through the dedicated server. Links not in the list of approved sites will have their access denied. In a second, equally preferred embodiment, code defining a database location is removed at the dedicated server to de-activate links to non-approved database sites. The words representing the de-activated links are bleached of any indicia that represent the previous electronic network link. In a third embodiment of the invention, a framed screen display overrides the browser application display to prevent a user from defining a location for independent access to the electronic network. The only access to the electronic network is provided through the dedicated server and the user is thereby restricted to accessing the approved sites.



DATABASE ACCESS SYSTEM

BACKGROUND OF THE INVENTION

TECHNICAL FIELD

The invention relates to database systems. More particularly, the invention relates to a system for organizing access to a database that is distributed over an electronic network.

DESCRIPTION OF THE PRIOR ART

Electronic networks are increasingly being used to store and distribute data. Examples of such electronic networks include the Internet, and intranet systems. Electronic networks such as the World Wide Web (WWW) are used to distribute a variety of data types. For example, a WWW page may include text, graphical displays, video displays, animation, and sounds.

Software programs are also being distributed via such electronic networks. With the advent of software applications such as Java™, developed by Sun Microsystems, Inc. of Mountain View, California, individual software applications may be stored at a central location, or server, and accessed as needed by a user.

Fig. 1 is a diagram of a database distribution system on an electronic network, according to the prior art. Such databases may include any stored data that is available for distribution over an electronic network, such as the Internet. Such databases include World Wide Web (WWW) pages, Newsgroup postings, Internet Relay Chat channels, and electronic mail (email) storage.

Two methods are commonly used to access a destination point, such as a database 10, 12, 14. Each destination point has an address representing its virtual location on the electronic network. In the first method, the user 16 accesses the destination point by contacting its address using available navigation facilities in a software application, such as a browser.

Fig. 2 is a screen shot 20 of a web browser, according to the prior art. A web browser typically permits the user to input the address of a destination point, for example into a requestor 22, or to select a previously stored or "bookmarked" destination point 24. In response to such request, the browser directly contacts the destination point to retrieve the desired data. For example, in the example of Fig. 1, the user 16 can access database 12 by inputting its address into a requestor, or by selecting a stored "bookmark" address. The retrieved data is then displayed, for

Rather, *Judson* teaches a method for enhancing "the operation of a web browser by causing the display of some useful information to the user during the period of user 'downtime' that otherwise occurs between linking and downloading of a hypertext document..." The user may request access to any site on the electronic network while using the *Judson* browser.

Nielsen, *Method and system for comicstrip representation of multimedia presentations*, European Patent No. EP 737 930 (16 October 1996) describes a method for displaying a summary representation of a larger work. While the *Nielsen* system organizes multimedia data, it does not control a user's access to the Internet.

It would therefore be an advantage to provide a system for organizing access to a database that is distributed over an electronic network. It would be a further advantage if such system were able to contour the database sites on the electronic network to restrict a user to pre-approved sites.

SUMMARY OF THE INVENTION

The invention provides a system for organizing access to a database that is distributed over an electronic network. A list of addresses to approved database sites on an electronic network is stored on a system site on a dedicated server. A user electronically accesses the server with a browser or other application.

Reference cards permit the user to search and review the list of approved sites prior to selection. Requests for data from approved sites on the electronic network are directed to the system site. The dedicated server directly accesses the electronic network to retrieve the requested data for transmission to the user. The dedicated server thereby functions as a transparent mediator accessing only the approved sites on the electronic network.

In a first preferred embodiment of the invention, a request for access to a database site is made to the dedicated server. The server compares the requested destination point to a list of approved sites. If the requested destination point is not in the list of approved sites, the dedicated server denies the request for access. An approved database is retrieved from its database server by the dedicated server. Each approved link inside the database is modified from direct to indirect to require all future access to the approved link to be directed through the dedicated server. Links not in the list of approved sites will have their access denied.

In a second, equally preferred embodiment of the invention, links that are not in the approved list are removed from the requested database by the link modifying and deactivating/bleaching module in the dedicated server. The removal process strips the element from its linking qualities by removing a portion of the

a browser, the server compares the requested destination point to a list of approved sites. The module 46 storing the list of approved sites may be stored on the dedicated server or at a remote location accessed by the server and is readily created by one skilled in the applicable art, using well-known software applications and hardware components.

A list of approved sites may be updated, as desired, by an editor who screens databases for their content. Alternately, the software enabling the system site may be configured to automatically approve databases meeting pre-defined criteria. For example, a system site serving the electronics industry may be configured to automatically approve all sites whose title refers to electrical engineering. A system site serving children may include only databases reviewed by an editorial board for age-appropriate content.

The requested destination point is not in the list of approved sites, the dedicated server denies the request for access. If the database has been previously approved and is in the list, access is approved. The dedicated server then retrieves the requested database from its database server.

When a database passes through the dedicated server 48, each link 38, 40, 42, 44 inside the database is modified from direct to indirect. As a result, when a link is later activated, the link will request the referenced database through the dedicated server. Links not in the list of approved sites, for example, a link 40 to database 34, will have their access denied 50 by the link modifying module 54 in the dedicated server. The requested database is then passed to the user. Thus, all subsequent accesses to the requested database and linked databases, for example, through use of a bookmark, must also pass through the dedicated server.

Fig. 4 is a schematic diagram of a system for organizing access to a database, according to a second preferred embodiment of the invention. In this second embodiment, when the requested database passes through the dedicated server, each link 38, 40, 42, 44 inside the database is compared with the list of approved sites 46. Links in the list of approved sites are modified from direct to indirect.

However, links that are not in the approved list are removed from the requested database by the link modifying and deactivating/bleaching module 52 in the dedicated server 48. The removal process renders the non-approved links inactive, such that clicking on the link will not result in a new database request. This deactivation process strips the element (e.g., word, graphic object) from its linking qualities by removing a portion of the code defining the link. The element may also be stripped of any features that signal the presence of a link, such as an identifying color. Thus, the user will not be aware that a link has been deactivated.

This code forces the electronic network to indirectly transfer Database2 to the user through the dedicated server. In the example, Database2 is in the list of approved sites, and the transfer will take place.

A user request for Database generates the coded request:

http://www.contour.com/www.database3.com/

However, since Database3 is not in the approved list, this request will be denied by the dedicated server and the transfer will not take place.

In the second, equally preferred embodiment of the invention, the links inside Database1 are modified differently. In this embodiment, accessing the contour description "http://www.contour.com/www.database1.com/" 56 yields the following HTML code:

Table 3

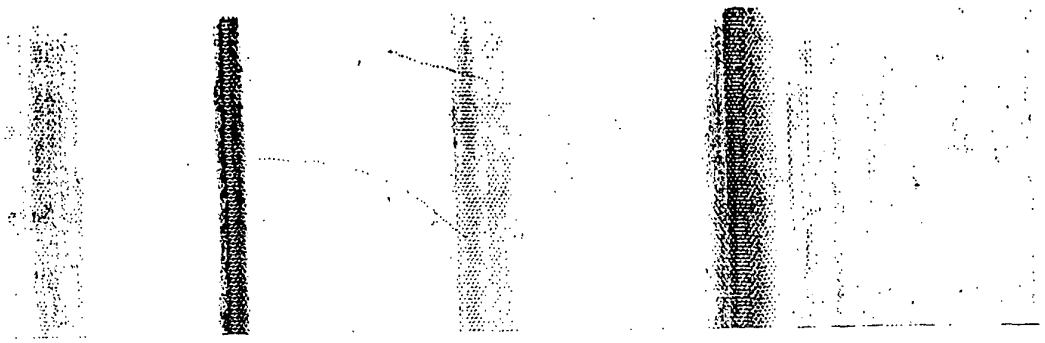
http://www.database1.com/

<HTML>
....data...<ahref="http://www.contour.com/www.database2.com/">Database2 58
....data... Database3 60
</HTML>

The coded tags <ahref...> and defining the text "Database3" as an active link have been removed 62. Thus, this line will be represented as a text line that says "Database3" but this line will not act as an active link. The approved link, Database2, retains the <ahref...> and tags and remains an active link 58.

In a third embodiment of the invention, a framed screen is used to restrict access to undefined on points. Fig. 5 is a screen shot of a framed web browser 70 according to the invention. The frame 72 overrides at least a portion of the browser application display to cover, for example, a requestor or a bookmark list. The user is not permitted to input a destination address to define a location for independent access to the electronic network. The user is thereby restricted to accessing approved sites via the dedicated server.

The framed screen display organizes access to the approved sites via the dedicated server. The only access to the electronic network is provided through the dedicated server and the user is thereby restricted to accessing the approved sites.



electronic network using the download module 90. The bleach module 92 removes code from the downloaded data to deactivate and bleach non-approved links. The requested information is then transmitted to the user by the distribution module 94. One skilled in the art will readily appreciate that the system site may be configured to include fewer or additional modules, as desired.

Although the invention is described herein with reference to the preferred embodiment, one skilled in the art will readily appreciate that other applications may be substituted for those set forth herein without departing from the spirit and scope of the present invention.

For example, the system site may be located on a network of dedicated servers. Individual modules of the software applications enabling the system site may also be stored on different computers within a networked system.

The system site may include interactive areas to permit the user to provide data to the system site, or to communicate with the system operator. The system site may be configured to permit or restrict the user from submitting data to a database on the approved list.

The invention may be used with any suitable commercial browser application for accessing data via an electronic network. The invention is applicable to both Internet and Intranet database systems.

The contouring process that restricts access to non-approved databases provides a safe, controlled environment for users of an electronic network. For example, children are only permitted access to databases having age-appropriate subject matter. Because the database is contoured according to specific parameters, such as age or subject matter, it may be searched efficiently for related topics of interest.

Accordingly, the invention should only be limited by the Claims included below.

8. The system of Claim 1, further including at least one search engine for searching and reviewing said list.

9. The system of Claim 4, wherein said search engine comprises reference cards.

10. The system of Claim 1, wherein said user accesses said system site with a browser application.

11. A system for organizing access to a database that is distributed over an electronic network, comprising:

a dedicated server in communication with said electronic network;

a system site on said dedicated server and having a list of at least one address of at least one approved database site on said electronic network stored thereon, wherein said system site may be accessed by a user with a browser application;

at least one search engine for searching and reviewing said list;

means for accessing said database site with said dedicated server in response to a request from said user;

means for downloading any contents of said accessed database site to said dedicated server;

means for modifying link in said contents of said database to a second database site to require said second database site to be accessed via said dedicated server; and

means for transmitting said downloaded contents from said dedicated server to said user.

12. The system of Claim 11, further comprising:

means for de-activating a link in said contents of said database to a database site not included in said stored list; and

means for bleaching said de-activated link of any distinguishing feature representing an active link.

13. The system of Claim 11, further comprising a framed screen display to organize said user access to said approved database site.

14. The system of Claim 13, wherein said framed screen display overrides at least a portion of said browser application display to restrict said user from directly accessing said electronic network.

19. The method of Claim 18, further comprising the steps of:

modifying a link to a second database site included in said list to require access to said second database site to be via said dedicated server; and

de-activating a link to a third site embedded in said downloaded data when said linked database site is not included in said list of approved databases.

20. The method of Claim 19, further including the step of bleaching any colors representing an active electronic network link from said de-activated link.

21. The method of Claim 19, further comprising the step of framing a screen display to organize said user access to said approved database site.

22. The system of Claim 21, wherein said framed screen display overrides at least a portion of said browser application display to restrict said user from directly accessing said electronic network.

23. The method of Claim 18, further including the step of providing a dedicated database available for direct downloading by said user.

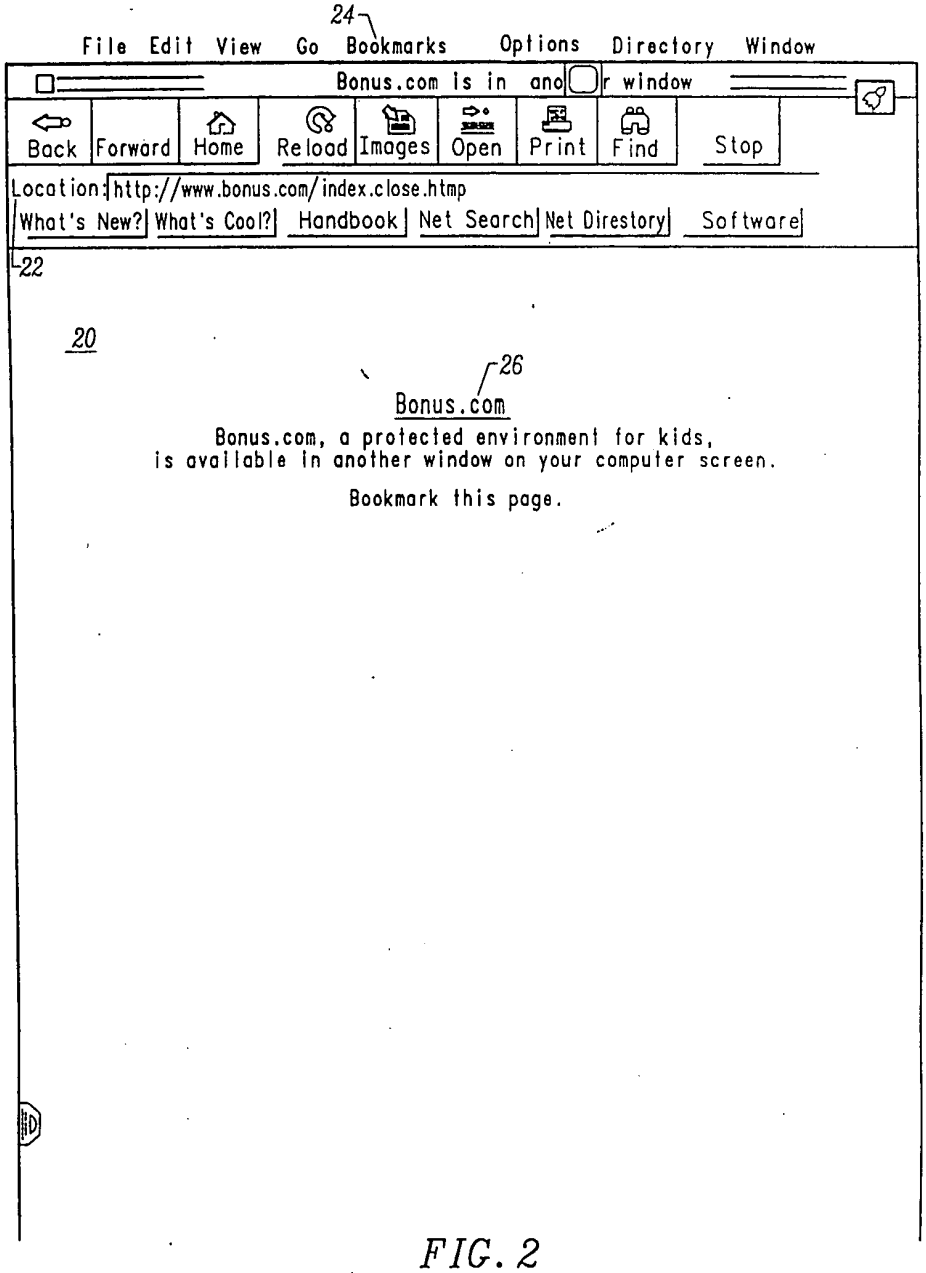

24
File Edit View Go Bookmarks Options Directory Window
Bonus.com is in another window
Back Forward Home Reload Images Open Print Find Stop
Location: http://www.bonus.com/index.close.htmp
What's New? What's Cool? Handbook Net Search Net Direstory Software
22
20
26
Bonus.com
Bonus.com, a protected environment for kids,
is available in another window on your computer screen.
Bookmark this page.

FIG. 2

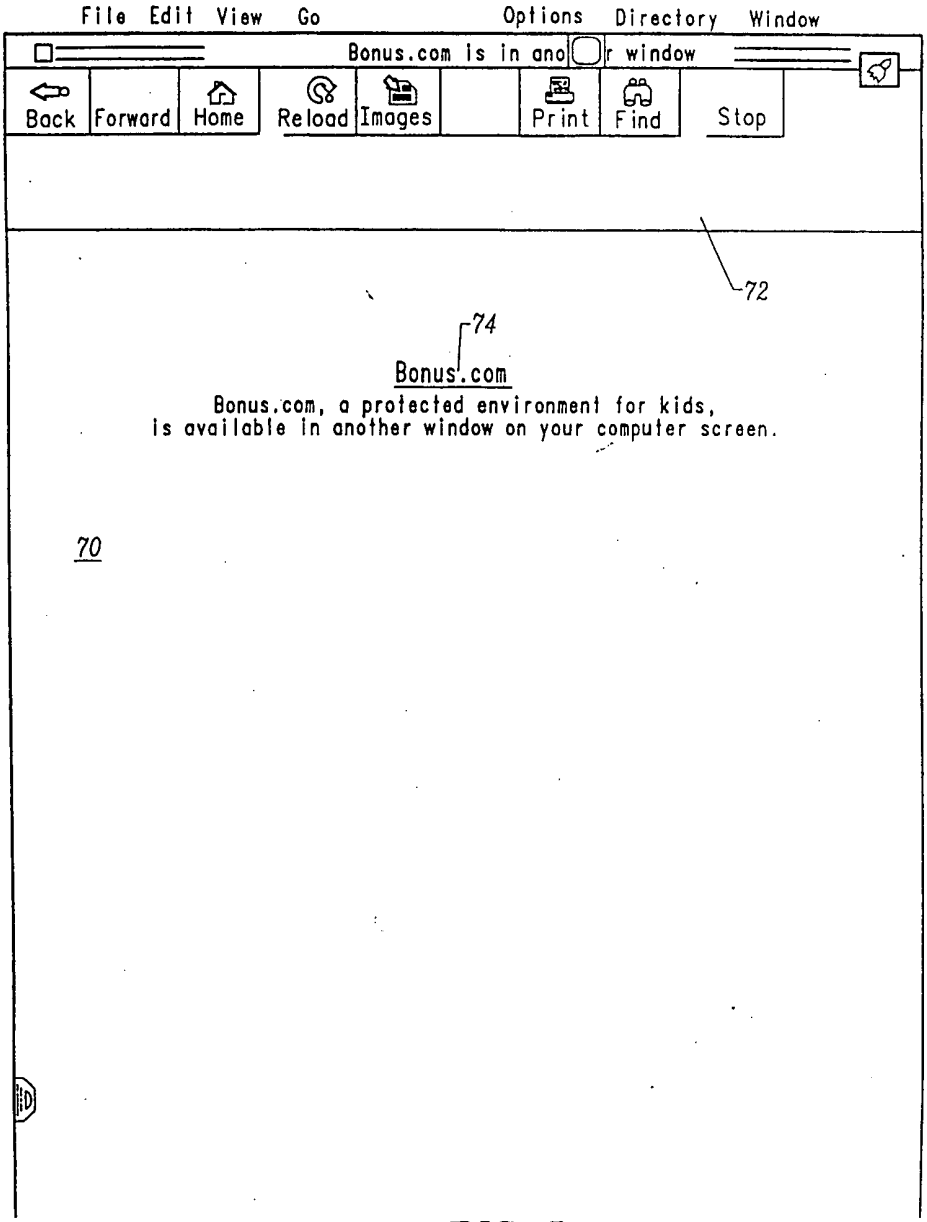

File Edit View Go Options Directory Window
Bonus.com is in ano r window
Back
Forward
Home
Reload
Images
Print
Find
Stop
72
74
Bonus.com
Bonus.com, a protected environment for kids,
is available in another window on your computer screen.
70

FIG. 5

INTERNATIONAL SEARCH REPORT

International Application No
PCT/US 98/07953

A. CLASSIFICATION OF SUBJECT MATTER
IPC 6 H04L29/06 G06F1/00

According to International Patent Classification(IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 6 H04L G06F

Documentation searched other than minimumdocumentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 0 748 095 A (AT & T CORP) 11 December 1996	1,6-8,10
A	see column 3, line 26 - line 52; figure 1 see column 4, line 18 - column 6, line 35	11,17,18
X	SANDHU R S ET AL: "ACCESS CONTROL: PRINCIPLES AND PRACTICE" IEEE COMMUNICATIONS MAGAZINE, vol. 32, no. 9, 1 September 1994, pages 40-48, XP000476554 see page 40, left-hand column, line 18 - page 42, right-hand column, line 49	1

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[X] Further documents are listed in the continuation of box C.

[X] Patent family members are listed in annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publicationdate of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

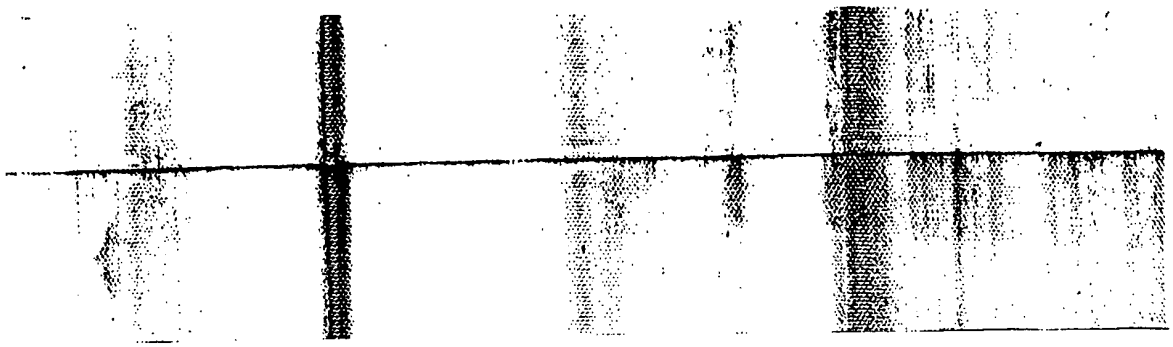
"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of theinternational search	Date of mailing of the international search report
17 July 1998	24/07/1998

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Deane, E

Form PCT/ISA/210 (second sheet) (July 1992)



INTERNATIONAL SEARCH REPORT

International Application No
PCT/US 98/07953

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 0748095 A	11-12-1996	US 5678041 A	14-10-1997
		CA 2176775 A	07-12-1996
		CN 1145489 A	19-03-1997
		JP 9026975 A	28-01-1997